

WHAT IS CLAIMED IS:

1. A ceramic slurry composition comprising:

a ceramic raw material powder;
a water-soluble acrylic binder; and
an aqueous solvent,

5 wherein said water-soluble acrylic binder has a weight average molecular weight of from about 10,000 to 500,000, and has an inertial square radius of not more than about 100 nm in the aqueous solvent.

2. A ceramic slurry composition according to Claim 1, wherein said water-soluble acrylic binder has a number of aggregated molecules denoted by X and a second virial coefficient denoted by Y in the range satisfying the following relationship:

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$$Y \leq -0.0002X^2 - 0.0004X + 0.0051$$

wherein $X \geq 1$ and $Y \geq 0.00023$.

3. The ceramic slurry composition according to Claim 2, wherein said water-soluble acrylic binder is a copolymer containing from about 93 to 99 % by weight of alkyl (meth)acrylate which does not dissolve in water as a homopolymer at ambient temperatures and under atmospheric pressure, and from about 1.0 to 7.0 %
5 by weight of a carboxyl group-containing unsaturated monomer.

4. The ceramic slurry composition according to Claim 3, wherein the alkyl groups of said alkyl (meth)acrylate have from 1 to 8 carbon atoms.

5. The ceramic slurry composition according to Claim 4, wherein said alkyl acrylate is at least one member selected from the group consisting of methyl acrylate, ethyl acrylate, isopropyl acrylate, n-butyl acrylate, isobutyl acrylate, cyclohexyl acrylate and 2-ethylhexyl acrylate.

6. The ceramic slurry composition according to Claim 4, wherein said alkyl methacrylate is at least one selected from the group consisting of methyl methacrylate, ethyl methacrylate, isopropyl methacrylate, n-butyl methacrylate, isobutyl methacrylate, cyclohexyl methacrylate and 2-ethylhexyl methacrylate.

7. The ceramic slurry composition according to Claim 3, wherein said carboxyl group-containing unsaturated monomer is an unsaturated carboxylic acid or partial ester thereof.

8. The ceramic slurry composition according to Claim 7, wherein said carboxyl group-containing unsaturated monomer is (meth)acrylic acid or a half ester thereof.

9. The ceramic slurry composition according to Claim 1, wherein said water-soluble acrylic binder is a neutralized salt.

10. The ceramic slurry composition according to Claim 1, wherein said water-soluble acrylic binder is a copolymer containing from about 93 to 99 % by weight of alkyl (meth)acrylate which does not dissolve in water as a homopolymer at ambient temperatures and under atmospheric pressure, and from about 1.0 to 7.0 % by weight of a carboxyl group-containing unsaturated monomer.

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11. The ceramic slurry composition according to Claim 10, wherein the alkyl groups of said alkyl (meth)acrylate have from 1 to 8 carbon atoms.

12. The ceramic slurry composition according to Claim 11, wherein said carboxyl group-containing unsaturated monomer is an unsaturated carboxylic acid or partial ester thereof.

13. The ceramic slurry composition according to Claim 12, wherein said carboxyl group-containing unsaturated monomer is (meth)acrylic acid or a half ester thereof.

14. The ceramic slurry composition according to Claim 10 in the form of a ceramic green sheet.

15. The ceramic slurry composition according to Claim 4 in the form of a ceramic green sheet.

16. The ceramic slurry composition according to Claim 3 in the form of a ceramic green sheet.

17. The ceramic slurry composition according to Claim 2 in the form of a ceramic green sheet.

18. The ceramic slurry composition according to Claim 1 in the form of a ceramic green sheet.

19. A method for manufacturing a ceramic slurry composition comprising:

providing a water soluble acrylic binder precursor;

5 dispersing at least acrylic acid and an acrylate into a solvent to obtain a binder precursor;

subjecting said binder precursor to high pressure dispersion under a pressure of not less than about 100 kg/cm² and not more than about 1,750 kg/cm² to obtain a water-soluble acrylic binder; and

10 mixing said water-soluble acrylic binder with a ceramic raw material powder and an aqueous solvent,

wherein said water-soluble acrylic binder has a weight average molecular weight of from about 10,000 to 500,000, and has an inertial square radius of not more than about 100 nm in the aqueous solvent.

20. The method of claim 19, wherein the said binder precursor comprises about 93 to 99 % by weight of alkyl (meth)acrylate which does not dissolve in water as a homopolymer at ambient temperatures and under atmospheric pressure, and from about 1.0 to 7.0 % by weight of a carboxyl group-containing unsaturated
5 monomer.